

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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For: Apparatus and Method
For Executing Block
Programs

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PROPOSED RESPONSE

In response to the examiner's request to amend the claims to place the application in condition for allowance in her voice mail message of June 16, 2006 applicants submit the proposed claim amendments below.

The Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 6 of this paper.

The Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

1. (Currently Amended) A computer-implemented controller for use in an heating ventilation and air conditioning (HVAC) system for executing a block program to control at least one device in said system comprising:

a block table listing a plurality of records corresponding to a plurality of blocks in the block program provided in said controller;

a block library provided in said controller for holding a plurality of algorithms for executing functions associated with said blocks;

a block execution engine for executing said blocks in said block program in accordance with said associated algorithms; and

wherein said block execution engine selectively executes said blocks in the block program only when said block execution engine determines a new input value exists which is different from a previous input value to control said at least one device in said system.

2. (Previously Presented) The controller as defined in claim 1 further including an execution image file for storing descriptions of said blocks and connections between said blocks.

3. (Previously Presented) The controller as defined in claim 1 further including means for inputting/outputting data to and from said block execution engine.

4. (Previously Presented) The controller as defined in claim 1 wherein each of said records in said block table includes a field indicating whether a corresponding one of said blocks is to be executed by said block execution engine.

5. (Previously Presented) The controller as defined in claim 4 wherein each of said records in said block table further includes,

a field for indicating the type of function performed by said corresponding one of said blocks, and
a field for identifying said corresponding one of said blocks.

6. (Previously Presented) The controller as defined in claim 5 wherein each of said records in said block table further includes,

at least one field for identifying at least one output connector connected to said corresponding one of said blocks,

at least one field for identifying at least one input connector connected to said corresponding one of said blocks,

at least one field for storing an input value of said corresponding one of said blocks, and

an output value field for storing an output value of said corresponding one of said blocks.

7. (Previously Presented) The controller as defined in claim 1 further including a connector table listing a plurality of records of a plurality of connectors for operatively connecting said blocks.

8. (Previously Presented) The controller as defined in claim 7 wherein each of said records in said connector table includes a field identifying one of said blocks to which a corresponding connector is connected at a first end, and at least one field for identifying at least one of said blocks to which said corresponding connector is connected at least one second end.

9. (Previously Presented) A computer-implemented method for executing a block program for controlling at least one device an heating, ventilation and air conditioning system (HVAC) using a controller, comprising the steps of:

creating a block table of plurality of block records in the controller that correspond to a plurality of blocks used in the block program;

creating a library in the controller for holding a plurality of algorithms for executing functions associated with said blocks;

selectively setting a flag in said block records directly in response to when at least one input value of corresponding said blocks changes; and

executing said algorithms of said blocks in said block program having corresponding block records that have said flag set to control said at least one device in said system.

10. (Previously Presented) The method as defined in claim 9 further including the step of creating a connector table of records that correspond to connectors for operatively connecting said blocks.

11. (Previously Presented) The method as defined in claim 10 further including the step of subsequently setting a flag in said records corresponding to said blocks that are connected to at least one output of said blocks that have been executed, if a value of said at least one output of said executed blocks has changed.

12. (Previously Presented) The method as defined in claim 11 wherein said step of subsequently setting said flag includes the steps of obtaining an identification of a connector corresponding to said at least one output of said executed blocks from said block records corresponding to said executed blocks, and obtaining an identification of blocks that are connected to said connector.

13. (Previously Presented) The method as defined in claim 10, wherein said block table and said connector tables are created from an execution image file storing said records for said blocks and said connectors.

14. (Previously Presented) The method as defined in claim 9 wherein said executing step is performed at every predetermined time interval.

15. (Previously Presented) The method as defined in claim 9 wherein said records in said block table are listed in an order corresponding to a predetermined order in which said blocks are adapted to be executed in said block program.

16. (Previously Presented) The method as defined in claim 15 wherein said executing step includes a step of checking each record in said block table in said listed order for said block records having said flag set.

17. (Currently Amended) A computer-implemented controller for use in an heating, ventilation and air conditioning (HVAC) system having a block program for controlling at least one device in said system, comprising:

a block table, provided in said controller, listing a plurality of records corresponding to a plurality of function blocks in the block program, said blocks each having at least one input for receiving an input value and at least one output for outputting an output value;

a connector table listing records of connectors for operatively connecting said blocks;

a block library for holding algorithms associated with said blocks; and,

a block execution engine for executing said blocks in said block program in accordance with said associated algorithms;

wherein said block execution engine selectively executes said blocks in the block program only when said block execution engine determines a new input value is present which is different from a previous input value, wherein at least one device in said system is controlled in response to said block execution engine selectively executing a block.

18. (Previously Presented) The controller as defined in claim 17 further including means for inputting data to said block execution engine from the devices and the system, and outputting data to the devices and the system from said block execution engine.

19-20 (Cancelled)

REMARKS/ARGUMENTS

The claims have been amended per the examiner's request in her voice mail message. If you have any questions or further suggestions, please do not hesitate to contact me.

Conclusion

For all the foregoing reasons, it is respectfully submitted the applicants have made a patentable contribution to the art. Favorable reconsideration and allowance of this application is, therefore, respectfully requested.

Respectfully submitted,
SIEMENS CORPORATION

Dated: _____

By: _____

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